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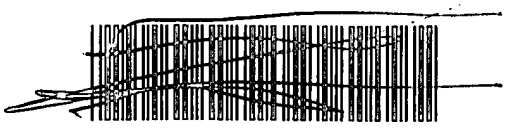
#6



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RAW SEQUENCE LISTING DATE: 09/27/2002
PATENT APPLICATION: US/10/072,809A TIME: 13:07:43

Input Set : A:\pto.vsk.txt
Output Set: N:\CRF4\09272002\J072809A.raw

3 <110> APPLICANT: Anderson, Marilyn, A., Lay, Fung T., Heath, Robyn, L.
5 <120> TITLE OF INVENTION: Plant-derived molecules and genetic sequences encoding same and uses
6 therefor
8 <130> FILE REFERENCE: 18-01
C--> 10 **<140> CURRENT APPLICATION NUMBER: US/10/072,809A**
C--> 11 **<141> CURRENT FILING DATE: 2002-09-12**
13 <150> PRIOR APPLICATION NUMBER: USSN 60/267,271
14 <151> PRIOR FILING DATE: 2001-02-08
16 <160> NUMBER OF SEQ ID NOS: 61
18 <170> SOFTWARE: PatentIn version 3.0
20 <210> SEQ ID NO: 1
21 <211> LENGTH: 28
22 <212> TYPE: DNA
23 <213> ORGANISM: Artificial Sequence
25 <220> FEATURE:
26 <223> OTHER INFORMATION: Description of Artificial Sequence: Primer
28 <400> SEQUENCE: 1
29 ggaattccat atggctcgct ccttgtgc 28
31 <210> SEQ ID NO: 2
32 <211> LENGTH: 29
33 <212> TYPE: DNA
34 <213> ORGANISM: Artificial Sequence
36 <220> FEATURE:
37 <223> OTHER INFORMATION: Description of Artificial Sequence: Primer
39 <400> SEQUENCE: 2
40 gcggatcctc agttatccat tatctcttc 29
42 <210> SEQ ID NO: 3
43 <211> LENGTH: 24
44 <212> TYPE: DNA
45 <213> ORGANISM: Artificial Sequence
47 <220> FEATURE:
48 <223> OTHER INFORMATION: Description of Artificial Sequence: Primer
50 <400> SEQUENCE: 3
51 ccggatccag agaatgcaaa acag 24
53 <210> SEQ ID NO: 4
54 <211> LENGTH: 26
55 <212> TYPE: DNA
56 <213> ORGANISM: Artificial Sequence
58 <220> FEATURE:
59 <223> OTHER INFORMATION: Description of Artificial Sequence: Primer
61 <400> SEQUENCE: 4
62 gggagctctt agttatccat tatctc 26
64 <210> SEQ ID NO: 5

RAW SEQUENCE LISTING DATE: 09/27/2002
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Input Set : A:\pto.vsk.txt
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<211> LENGTH: 31
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
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<223> OTHER INFORMATION: Description of Artificial Sequence: Primer
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ggaattctaa acaatggctc gctccttgtg c                                        31
<210> SEQ ID NO: 6
<211> LENGTH: 29
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: Description of Artificial Sequence: Primer
<400> SEQUENCE: 6
gctctagatc agttatccat tatctcttc                                           29
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<211> LENGTH: 141
<212> TYPE: DNA
<213> ORGANISM: Nicotiana alata
<220> FEATURE:
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<222> LOCATION: (1)..(141)
<400> SEQUENCE: 7
aga gaa tgc aaa aca gaa agc aac aca ttt cct gga ata tgc att acc       48
Arg Glu Cys Lys Thr Glu Ser Asn Thr Phe Pro Gly Ile Cys Ile Thr
1               5                  10                  15
aaa cca cca tgc aga aaa gct tgt atc agt gag aaa ttt act gat ggt       96
Lys Pro Pro Cys Arg Lys Ala Cys Ile Ser Glu Lys Phe Thr Asp Gly
            20                  25                  30
cat tgt agc aaa atc ctc aga agg tgc cta tgt act aag cca tgt          141
His Cys Ser Lys Ile Leu Arg Arg Cys Leu Cys Thr Lys Pro Cys
        35                  40                  45
<210> SEQ ID NO: 8
<211> LENGTH: 47
<212> TYPE: PRT
<213> ORGANISM: Nicotiana alata
<400> SEQUENCE: 8
Arg Glu Cys Lys Thr Glu Ser Asn Thr Phe Pro Gly Ile Cys Ile Thr
1               5                  10                  15
Lys Pro Pro Cys Arg Lys Ala Cys Ile Ser Glu Lys Phe Thr Asp Gly
            20                  25                  30
His Cys Ser Lys Ile Leu Arg Arg Cys Leu Cys Thr Lys Pro Cys
        35                  40                  45
<210> SEQ ID NO: 9
<211> LENGTH: 75
<212> TYPE: DNA
<213> ORGANISM: Nicotiana alata
<220> FEATURE:
<221> NAME/KEY: CDS
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RAW SEQUENCE LISTING DATE: 09/27/2002
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Input Set : A:\pto.vsk.txt
Output Set: N:\CRF4\09272002\J072809A.raw

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130 <222> LOCATION: (1)..(75)
132 <400> SEQUENCE: 9
133 atg gct cgc tcc ttg tgc ttc atg gca ttt gct atc ttg gca agg atg       48
134 Met Ala Arg Ser Leu Cys Phe Met Ala Phe Ala Ile Leu Ala Arg Met
135 1               5                   10                  15
137 ctc ttt gtt gcc tat gag gtg caa gct                                  75
138 Leu Phe Val Ala Tyr Glu Val Gln Ala
139             20                  25
141 <210> SEQ ID NO: 10
142 <211> LENGTH: 25
143 <212> TYPE: PRT
144 <213> ORGANISM: Nicotiana alata
146 <400> SEQUENCE: 10
147 Met Ala Arg Ser Leu Cys Phe Met Ala Phe Ala Ile Leu Ala Arg Met
148 1               5                   10                  15
150 Leu Phe Val Ala Tyr Glu Val Gln Ala
151             20                  25
153 <210> SEQ ID NO: 11
154 <211> LENGTH: 99
155 <212> TYPE: DNA
156 <213> ORGANISM: Nicotiana alata
158 <220> FEATURE:
159 <221> NAME/KEY: CDS
160 <222> LOCATION: (1)..(99)
162 <400> SEQUENCE: 11
163 gtg ttt gat gag aag atg act aaa aca gga gct gaa att ttg gct gag       48
164 Val Phe Asp Glu Lys Met Thr Lys Thr Gly Ala Glu Ile Leu Ala Glu
165 1               5                   10                  15
167 gaa gca aaa act ttg gct gca gct ttg ctt gaa gaa gag ata atg gat       96
168 Glu Ala Lys Thr Leu Ala Ala Ala Leu Leu Glu Glu Glu Ile Met Asp
169             20                  25                  30
171 aac                                                                  99
172 Asn
174 <210> SEQ ID NO: 12
175 <211> LENGTH: 33
176 <212> TYPE: PRT
177 <213> ORGANISM: Nicotiana alata
179 <400> SEQUENCE: 12
180 Val Phe Asp Glu Lys Met Thr Lys Thr Gly Ala Glu Ile Leu Ala Glu
181 1               5                   10                  15
183 Glu Ala Lys Thr Leu Ala Ala Ala Leu Leu Glu Glu Glu Ile Met Asp
184             20                  25                  30
186 Asn
188 <210> SEQ ID NO: 13
189 <211> LENGTH: 216
190 <212> TYPE: DNA
191 <213> ORGANISM: Nicotiana alata
193 <220> FEATURE:
194 <221> NAME/KEY: CDS
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Input Set : A:\pto.vsk.txt
Output Set: N:\CRF4\09272002\J072809A.raw

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<222> LOCATION: (1)..(216)
<400> SEQUENCE: 13
atg gct cgc tcc ttg tgc ttc atg gca ttt gct atc ttg gca agg atg       48
Met Ala Arg Ser Leu Cys Phe Met Ala Phe Ala Ile Leu Ala Arg Met
1               5                   10                  15
ctc ttt gtt gcc tat gag gtg caa gct aga gaa tgc aaa aca gaa agc       96
Leu Phe Val Ala Tyr Glu Val Gln Ala Arg Glu Cys Lys Thr Glu Ser
            20                  25                  30
aac aca ttt cct gga ata tgc att acc aaa cca cca tgc aga aaa gct      144
Asn Thr Phe Pro Gly Ile Cys Ile Thr Lys Pro Pro Cys Arg Lys Ala
        35                  40                  45
tgt atc agt gag aaa ttt act gat ggt cat tgt agc aaa atc ctc aga      192
Cys Ile Ser Glu Lys Phe Thr Asp Gly His Cys Ser Lys Ile Leu Arg
    50                  55                  60
agg tgc cta tgt act aag cca tgt                                     216
Arg Cys Leu Cys Thr Lys Pro Cys
65                  70
<210> SEQ ID NO: 14
<211> LENGTH: 72
<212> TYPE: PRT
<213> ORGANISM: Nicotiana alata
<400> SEQUENCE: 14
Met Ala Arg Ser Leu Cys Phe Met Ala Phe Ala Ile Leu Ala Arg Met
1               5                   10                  15
Leu Phe Val Ala Tyr Glu Val Gln Ala Arg Glu Cys Lys Thr Glu Ser
            20                  25                  30
Asn Thr Phe Pro Gly Ile Cys Ile Thr Lys Pro Pro Cys Arg Lys Ala
        35                  40                  45
Cys Ile Ser Glu Lys Phe Thr Asp Gly His Cys Ser Lys Ile Leu Arg
    50                  55                  60
Arg Cys Leu Cys Thr Lys Pro Cys
65                  70
<210> SEQ ID NO: 15
<211> LENGTH: 240
<212> TYPE: DNA
<213> ORGANISM: Nicotiana alata
<220> FEATURE:
<221> NAME/KEY: CDS
<222> LOCATION: (1)..(240)
<400> SEQUENCE: 15
aga gaa tgc aaa aca gaa agc aac aca ttt cct gga ata tgc att acc       48
Arg Glu Cys Lys Thr Glu Ser Asn Thr Phe Pro Gly Ile Cys Ile Thr
1               5                   10                  15
aaa cca cca tgc aga aaa gct tgt atc agt gag aaa ttt act gat ggt       96
Lys Pro Pro Cys Arg Lys Ala Cys Ile Ser Glu Lys Phe Thr Asp Gly
            20                  25                  30
cat tgt agc aaa atc ctc aga agg tgc cta tgt act aag cca tgt gtg      144
His Cys Ser Lys Ile Leu Arg Arg Cys Leu Cys Thr Lys Pro Cys Val
        35                  40                  45
```

RAW SEQUENCE LISTING DATE: 09/27/2002
PATENT APPLICATION: US/10/072,809A TIME: 13:07:43

Input Set : A:\pto.vsk.txt
Output Set: N:\CRF4\09272002\J072809A.raw

```
261 ttt gat gag aag atg act aaa aca gga gct gaa att ttg gct gag gaa      192
262 Phe Asp Glu Lys Met Thr Lys Thr Gly Ala Glu Ile Leu Ala Glu Glu
263     50                  55                  60
265 gca aaa act ttg gct gca gct ttg ctt gaa gaa gag ata atg gat aac      240
266 Ala Lys Thr Leu Ala Ala Ala Leu Leu Glu Glu Glu Ile Met Asp Asn
267 65                  70                  75                  80
269 <210> SEQ ID NO: 16
270 <211> LENGTH: 80
271 <212> TYPE: PRT
272 <213> ORGANISM: Nicotiana alata
274 <400> SEQUENCE: 16
275 Arg Glu Cys Lys Thr Glu Ser Asn Thr Phe Pro Gly Ile Cys Ile Thr
276 1               5                   10                  15
278 Lys Pro Pro Cys Arg Lys Ala Cys Ile Ser Glu Lys Phe Thr Asp Gly
279             20                  25                  30
281 His Cys Ser Lys Ile Leu Arg Arg Cys Leu Cys Thr Lys Pro Cys Val
282         35                  40                  45
284 Phe Asp Glu Lys Met Thr Lys Thr Gly Ala Glu Ile Leu Ala Glu Glu
285     50                  55                  60
287 Ala Lys Thr Leu Ala Ala Ala Leu Leu Glu Glu Glu Ile Met Asp Asn
288 65                  70                  75                  80
290 <210> SEQ ID NO: 17
291 <211> LENGTH: 541
292 <212> TYPE: DNA
293 <213> ORGANISM: Nicotiana alata
295 <220> FEATURE:
296 <221> NAME/KEY: CDS
297 <222> LOCATION: (1)..(318)
299 <400> SEQUENCE: 17
300 atg gct cgc tcc ttg tgc ttc atg gca ttt gct atc ttg gca agg atg       48
301 Met Ala Arg Ser Leu Cys Phe Met Ala Phe Ala Ile Leu Ala Arg Met
302 1               5                   10                  15
304 ctc ttt gtt gcc tat gag gtg caa gct aga gaa tgc aaa aca gaa agc       96
305 Leu Phe Val Ala Tyr Glu Val Gln Ala Arg Glu Cys Lys Thr Glu Ser
306             20                  25                  30
308 aac aca ttt cct gga ata tgc att acc aaa cca cca tgc aga aaa gct      144
309 Asn Thr Phe Pro Gly Ile Cys Ile Thr Lys Pro Pro Cys Arg Lys Ala
310         35                  40                  45
312 tgt atc agt gag aaa ttt act gat ggt cat tgt agc aaa atc ctc aga      192
313 Cys Ile Ser Glu Lys Phe Thr Asp Gly His Cys Ser Lys Ile Leu Arg
314     50                  55                  60
316 agg tgc cta tgt act aag cca tgt gtg ttt gat gag aag atg act aaa      240
317 Arg Cys Leu Cys Thr Lys Pro Cys Val Phe Asp Glu Lys Met Thr Lys
318 65                  70                  75                  80
320 aca gga gct gaa att ttg gct gag gaa gca aaa act ttg gct gca gct      288
321 Thr Gly Ala Glu Ile Leu Ala Glu Glu Ala Lys Thr Leu Ala Ala Ala
322                 85                  90                  95
324 ttg ctt gaa gaa gag ata atg gat aac taa ttagagatta gaagaaatta       338
325 Leu Leu Glu Glu Glu Ile Met Asp Asn
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RAW SEQUENCE LISTING ERROR SUMMARY DATE: 09/27/2002
PATENT APPLICATION: US/10/072,809A TIME: 13:07:44

Input Set : A:\pto.vsk.txt
Output Set: N:\CRF4\09272002\J072809A.raw

Please Note:
Use of n and/or Xaa have been detected in the Sequence Listing. Please review the Sequence Listing to ensure that a corresponding explanation is presented in the <220> to <223> fields of each sequence which presents at least one n or Xaa.

Seq#:58; Xaa Pos. 1,2,4,5,6,8,9,11,13,15,16,17,18,19,21,22,23,25,26,28,30
Seq#:58; Xaa Pos. 31,33,35,36,37,38,39,40,42,45,46
Seq#:59; Xaa Pos. 2,3,5,6,7,8,9,10,11,12,13,14,15,16,17,18,19,20,21,22,23
Seq#:59; Xaa Pos. 24,25,26,27,28,29,30,32
Seq#:60; Xaa Pos. 1,2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18,19,20,21,22
Seq#:60; Xaa Pos. 23,24,25,26,27,28,29,30,31,32,33
Seq#:61; Xaa Pos. 2,3,5,6,7,8,9,10,11,12,13,14,15,16,17,18,19,20,21,22,23
Seq#:61; Xaa Pos. 24,25,26,27,28,29,30,32,33,34,36,37,38,40,41,43,45,47,48
Seq#:61; Xaa Pos. 49,50,51,53,54,55,57,58,60,62,63,65,67,68,69,70,71,72,74
Seq#:61; Xaa Pos. 77,78,80,81,82,83,84,85,86,87,88,89,90,91,92,93,94,95,96
Seq#:61; Xaa Pos. 97,98,99,100,101,102,103,104,105,106,107,108,109,110,111
Seq#:61; Xaa Pos. 112

VERIFICATION SUMMARY DATE: 09/27/2002
PATENT APPLICATION: US/10/072,809A TIME: 13:07:44

Input Set : A:\pto.vsk.txt
Output Set: N:\CRF4\09272002\J072809A.raw

L:10 M:270 C: Current Application Number differs, Replaced Current Application Number
L:11 M:271 C: Current Filing Date differs, Replaced Current Filing Date
L:1366 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:58 after pos.:0
L:1369 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:58 after pos.:16
L:1372 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:58 after pos.:32
L:1526 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:59 after pos.:0
L:1529 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:59 after pos.:16
L:1703 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:60 after pos.:0
L:1706 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:60 after pos.:16
L:1709 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:60 after pos.:32
L:2187 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:61 after pos.:0
L:2190 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:61 after pos.:16
L:2193 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:61 after pos.:32
L:2196 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:61 after pos.:48
L:2199 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:61 after pos.:64
L:2202 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:61 after pos.:80
L:2205 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:61 after pos.:96